

# *Final Bristol Bay Assessment Released*

## **Report describes potential impacts to salmon and wetlands from copper, gold mining**

Bristol Bay, Alaska

January 2014

The final "Assessment of Potential Mining Impacts on Salmon Ecosystems of Bristol Bay, Alaska," was released by the U.S. Environmental Protection Agency on January 15, 2014. The report concludes that large-scale mining in the Bristol Bay watershed poses risks to salmon, wildlife and Native Alaska cultures. Bristol Bay supports the largest sockeye salmon fishery in the world, producing nearly 50 percent of the world's wild sockeye with runs averaging 37.5 million fish each year.

### **Findings**

To assess potential mining impacts to salmon resources, EPA developed realistic mine scenarios based on a preliminary plan published by Northern Dynasty Minerals, as well as other mining industry references and consultation with mining experts. Numerous risks associated with large-scale mining are detailed in the assessment:

#### **Routine Operation**

- **Mine Footprint**
  - Depending on the size of the mine, EPA estimates 24 to 94 miles of salmon-supporting streams and 1,300 to 5,350 acres of wetlands, ponds, and lakes would be destroyed.
  - EPA estimates an additional 9 to 33 miles of salmon-supporting streams would experience altered streamflows likely to affect ecosystem structure and function.
- **Waste and Wastewater Management**
  - Extensive quantities of mine waste, leachates, and wastewater would have to be collected, stored, treated and managed during mining and long after mining concludes.
  - Consistent with the recent record of similar mines operating in the United States, polluted water from the mine site could enter streams through uncollected leachate or runoff, in spite of modern mining practices. Under routine operations, EPA estimates adverse direct and indirect effects on fish in 13 to 51 miles of streams.

#### **Accidents and Failures**

- **Wastewater Treatment Plant:** Short- and long-term water collection and treatment failures are possible. Depending on the size of the mine, EPA estimates adverse direct and indirect effects on fish in 48 to 62 miles of streams under a wastewater treatment failure scenario.
- **Transportation Corridor:** A transportation corridor to Cook Inlet would cross wetlands and approximately 64 streams and rivers in the Kvichak River watershed, 55 of which are known or likely to support salmon. Culvert failures, runoff, and spills of chemicals would put salmon spawning areas in and near Iliamna Lake at risk.
- **Pipeline:** Consistent with the recent record of petroleum pipelines and of similar mines operating in North and South America, pipeline failures along the transportation corridor could release toxic copper concentrate or diesel fuel into salmon-supporting streams or wetlands.
- **Tailings Dam:** Failure of a tailings storage facility dam that released only a partial volume of the stored tailings would result in catastrophic effects on fishery resources.



## Background and Purpose

In 2010, several Bristol Bay Alaska Native tribes requested that EPA take action under the Clean Water Act to protect Bristol Bay and salmon resources from development of the proposed Pebble Mine, which is one of the largest known undeveloped deposits of copper, gold and molybdenum mining venture backed by Northern Dynasty Minerals, Ltd. Other tribes also petitioned EPA to wait for a mine permitting process to begin before taking action on the potential environmental issues Pebble Mine presents.

Before responding to these requests, EPA identified a need for a scientific assessment to better inform the agency and others. EPA and other scientists with expertise in Alaska fisheries, mining, geochemistry, anthropology, risk assessment and other disciplines reviewed information compiled by the State of Alaska, federal resource agencies, tribes, the mining industry, and scientific institutions from around the world. EPA focused on the Kvichak and Nushagak River watersheds, which support half of the Bristol Bay sockeye salmon runs.

### Community Engagement

Public input was an important part of the assessment development process. The EPA held two public comment periods and received



233,000 comments on the first draft of the assessment in 2012 and 890,000 comments on the revised draft in 2013. Public meetings in Naknek, New Stuyahok, Levelock, Igiugig, Nondalton, Dillingham, Anchorage and Seattle were attended by approximately 2,000 people.

Comments reflected a wide variety of viewpoints and they strengthened the document by adding local information, adding scientific and traditional knowledge, correcting errors, making clarifications and ensuring that the analysis was complete and accurate.

All comments were reviewed and considered. A document that provides a response to comments and discusses how comments were used to improve the assessment will be available in the first part of 2014.

The Response to Public Comments will be posted on the EPA Bristol Bay website at [www.epa.gov/bristolbay](http://www.epa.gov/bristolbay).

### Peer Review

Peer review is an important part of developing any scientific assessment. The final Bristol Bay Watershed assessment was subjected to rigorous and independent expert peer review. Twelve independent scientists with expertise in mine engineering, salmon fisheries biology, aquatic ecology, aquatic toxicology, hydrology, wildlife ecology, and Alaska Native cultures reviewed the assessment for its scientific quality. The same peer reviewers evaluated the revised draft to determine how well EPA addressed their comments.

EPA has prepared a document that provides the Agency's response to peer review comments and discusses changes made to the assessment in response to the peer reviewers' input. This document is available on the EPA Bristol Bay website at [www.epa.gov/bristolbay](http://www.epa.gov/bristolbay)

### Tribal Consultation and Coordination

Throughout the assessment development process, EPA consulted and coordinated with federally recognized tribal governments and corporations. USEPA met with representatives from 20 of the 31 tribes in Bristol Bay including all 13 tribes in the Nushagak and Kvichak River watersheds, either in person or on the phone, during the consultation and coordination process. For more information on the process, view the [tribal engagement page](#) on the EPA Bristol Bay website.



## Next Steps

EPA produced the report with its authority to perform scientific assessments under Clean Water Act section 104. As a scientific report, this study does not recommend policy or regulatory decisions.

The assessment is a technical resource for governments, tribes and the public as we consider how to address the challenges of large-scale mining and ecological protection in the Bristol Bay watershed.

## Read the Report

You can read the Bristol Bay Assessment online at [www.epa.gov/bristolbay](http://www.epa.gov/bristolbay). The report can be downloaded by chapters to minimize download time.

When printed copies of the assessment are available, one will be placed in each Bristol Bay community, at the Anchorage Public Library and at EPA's Anchorage and Seattle offices. A copy of the full assessment on CD is available by request and

you can also request a printed copy of the executive summary. Unfortunately, due to the size of the document, courtesy printed copies of the full assessment are not available for individuals.

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## For More Information

Join the Bristol Bay listserv to get regular e-mail updates about EPA's work. Send an e-mail message to [smith.judy@epa.gov](mailto:smith.judy@epa.gov) or click the "[Contact Us](#)" link on the Bristol Bay web page.

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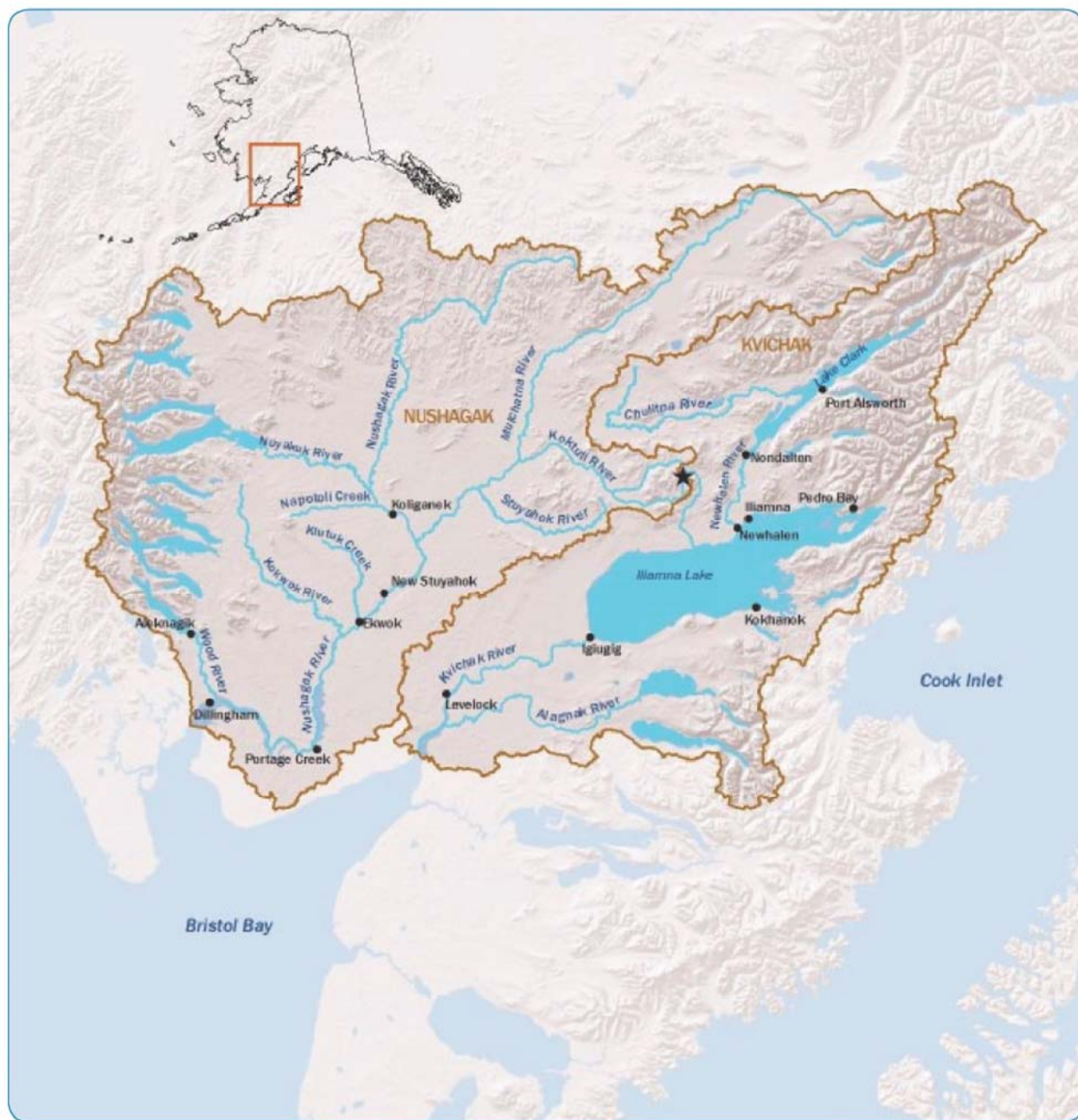
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Bristol Bay web page

<http://www.epa.gov/bristolbay>



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